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| NATH & ASSOCIATES 112 South West Street Alexandria, VA 22314 | | | EXAMINER NGUYEN, HOAN C | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/731,018

Applicant(s)

IWASA, TAKAYUKI

Examiner

HOAN C. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-15 is/are pending in the application.
- 4a) Of the above claim(s) 4,5 and 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: _____

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to claims 6-10 based on the Response filed on 04/18/2007 have been considered but are moot in view of the new ground(s) of rejection. Therefore, this is Final action.

This application contains claims 4-5 and 11-15 drawn to an invention nonelected with traverse in Paper filed on 5/16/2006. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Fumitoshi et al. (JP2002-357820) provided by IDS is published on 12/13/2002. The instant application is filed on 12/10/2003 (less than one year after Fumitoshi et al.). Applicants also mentioned that the filing date of the foreign priority is same date 12/13/2002 with the publication date of Fumitoshi et al.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amended claim 1 cited "the reflective pixel electrodes for the respective pixels and having first portions, second openings surrounding the first portions (?), and a second portion surrounding the second openings to electrically isolate the first portions from one another".

Applicants point out on page 11 in Remarks "the light blocking metal-containing films (33) are electrically connected to the first portion of the light blocking metal films (28) that are electrically isolated from the second portion (?) by the second openings (28a).

What is the second portion surrounding the second portion? What is second openings surrounding the first portions (28)? The openings (28a) are only the HOLES; thus the first and second portions of the light blocking metal films (28) cannot be electrically isolated.

The amended claim 7 cited "insulating films between the second portion of the light blocking metal films 28 and the light blocking metal-containing films 33 facing the second portion serve as second storage capacitors."

Again, the first light blocking metal films 28 and the light blocking metal-containing films 33 are electrical connected as claim 6 cited; therefore, the insulating films between them cannot serve as second storage capacitors since both the light blocking metal films 28 and the light blocking metal-containing films 33 have same

electrical potential or there is no voltage across them. Therefore, the amended feature of claim 7 cannot create second storage capacitor (also see attachment).

Examiner still believed that a capacitor is element comprising the insulating layer inserting between two electrodes, which have different voltages or electrical potential. This concept applicant may find in any basic physics book.

Claims 8-10 are rejected since they depend on the infinitive claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 6-8 and 10 are rejected under 35 U.S.C. 102(a) as being anticipated by Fumitoshi et al. (JP2002-357820) provided by IDS.

In regard to claim 6, Fumitoshi et al. disclose (Fig. 14) a reflective liquid crystal display having pixels arranged in a matrix comprising:

- a semiconductor substrate 1;
- a transparent substrate 61 that transmits light;
- switching elements Tr formed for the respective pixels on the semiconductor substrate and electrically isolated from one another;
- first storage capacitors Cp provided for the respective switching elements and electrically isolated from one another,

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- reflective pixel electrodes 41 provided for the respective pixels and having first openings 43 therebetween to be electrically isolated from one another;
- a transparent counter electrode 55 formed on a reverse of the transparent substrate to face the reflective pixel electrodes,
- liquid crystals 51 sealed between the reflective pixel electrodes and the transparent counter electrode;
- light blocking metal films 31 formed between the semiconductor substrate and the reflective pixel electrodes for the respective pixels and having first portions, second openings 30 surrounding the first portions, and a second portion surrounding the second openings 30 to electrically isolate the first portions from one another, wherein the second openings 30 do not face the first openings, and the light blocking metal films block at least part of light which is part of light which has transmitted through the transparent substrate and which has intruded into the light blocking metal films side through the first openings;
- normal metal films 23 formed between the semiconductor substrate and the reflective pixel electrodes for the respective pixels and having third openings 24 therebetween to be electrically isolated from one another, each normal metal film being electrically connected to a switching element and a first storage capacitor corresponding thereto; and
- light blocking metal-containing films 38' formed between the semiconductor substrate and the reflective pixel electrodes for the respective pixels and electrically isolated from one another; [in paragraph 99, light blocking metal-

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containing films 38' showing drawing 14 has insulation to the light shielding film 38 of drawing 7A having conductivity; in paragraph 59, the Ti/TiN film functions as a conductive light-shielding film 38...the adhesion of TiN film and the 4th interlayer insulation film 37 improves by forming Ti layer between an interlayer insulating 37 and TiN film]

wherein

- the reflective pixel electrodes 41 and the light blocking metal films 31 are electrically connected to each other through first via holes 40 (contact holes); the light blocking metal films 31 and the normal metal films 23 are electrically connected to each other through second via holes 27 (contact holes); and accordingly each reflective pixel electrode is electrically connected to the switching element and the first storage capacitor corresponding thereto, and
- the light blocking metal-containing films 38 are electrically connected to the via holes and cover the light blocking metal films 31 and cover the second openings 30 of the light blocking metal films in order to prevent the light which has intruded into the light blocking metal films side through the first openings from reaching the switching elements through the second openings.

Claim 7:

- insulating films 35/37 formed between the light blocking metal films 31 and the light blocking metal-containing films, wherein the insulating films serve as second storage capacitors.

Claim 8:

- thickness of the insulating films is set to be 20-50nm that is thinner than 400nm.

Claim 10:

- the light blocking metal-containing films are made layered TiN/Ti.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumitoshi et al. (JP2002-357820) provided by IDS as applied to claims 6-8 and 10 and in further view of Colgan et al. (US6781650B1).

Fumitoshi et al. fail to disclose the feature of claim 9.

Colgan et al. teach forming the insulating films are made of silicon nitride for providing high capacitance due to their large dielectric constant.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a reflective liquid crystal display device as Fumitoshi et al. disclosed with forming the insulating films are made of silicon nitride for providing high capacitance due to their large dielectric constant as Colgan et al. taught (col. 8 lines 1-24).

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **HOAN C. NGUYEN** whose telephone number is (571) 272-2296. The examiner can normally be reached on **MONDAY-THURSDAY:8:00AM-4:30PM**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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ANDREW SCHECHTER
PRIMARY EXAMINER

Attachment

